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Robert D. Shedd, Patent Operations
THOMSON Licensing LLC
P.O. Box 5312
Princeton, NJ 08543-5312

EXAMINER	
ROBERTS, JESSICA M	

ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,778	GOMILA ET AL.	
	Examiner	Art Unit	
	JESSICA ROBERTS	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/17/2009; 7/5/2007;7/11/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim(s) 1 and 6 is/are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent[1] and recent Federal Circuit decisions[2] indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example the method of concealing spatial errors in a coded image comprised of a stream of macroblocks, comprising the steps of "examining each macroblock", "establishing at least one intra-prediction mode", and "deriving estimated pixel data" is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally, or without a machine. The Applicant has not tied the method wit the steps of examining each

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[1] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

[2] *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

macroblock", "establishing at least one intra-prediction mode", and "deriving estimated pixel data" to a particular apparatus to perform the method as claimed.

Re claim 6, the method of concealing spatial errors in a coded image comprised of a stream of macroblocks coded in accordance with the ISO/ITU H.254 Standard, the method comprising the steps of "examining", "deriving", and "applying" is of sufficient breathed that it would be reasonably interpreted as a series of steps completely performed mentally, verbally, or without a machine. The Applicant has not tied the method with the steps of "examining", "deriving", and "applying" to a particular apparatus to perform the method as claimed.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz et al., US7,239,662 in view of Wiegand et al, Draft ISO/IEC 14496-10:2002 (E) (herein referenced as Wiegand) in view of Chien et al, US-5,621,467.

Regarding claim 1, Horowitz teaches a method of concealing spatial errors in a coded image comprised of a stream of macroblocks comprising the steps of: examining each macroblock for pixel data errors (fig. 7) if such errors exist, then: establishing at least one intra-prediction mode from neighboring blocks , and then deriving estimated pixel data in accordance with the at least one established intra prediction mode to correct the pixel data errors (if a lost intra-coded macroblock is not coded as part of the "walk-around-refresh" mechanism, then the coding engine 402 spatially interpolates the contents of the lost macroblock from adjacent macroblocks. In one embodiment of the invention, each 8.times.8 block of the lost macroblock is spatially interpolated from the two nearest blocks located in adjacent macroblocks. FIG. 7 illustrates an exemplary interpolation scheme using data associated with pixels located in adjacent macroblocks. FIG. 7 includes a lost macroblock 705, a left adjacent macroblock 710, an upper adjacent macroblock 715, and a right adjacent macroblock 720. For example, to reconstruct (i.e., interpolate) data for an 8.times.8 upper left-hand block 725 of the lost 16.times.16 macroblock 705, the coding engine 402 (FIG. 4) interpolates data in a last column of data 730 (indicated by x's) from an 8.times.8 upper right-hand block 735 of the left adjacent macroblock 710, and data in a last row of data 740 (indicated by an x's) from an 8.times.8 lower left-hand block 745 of the upper adjacent macroblock 715, col. 9 line 24-42. Therefore, it is clear to the Examiner that Horowitz discloses to use data

from the surrounding intra coded macroblocks to interpolate the image data fro the missing macroblock, which reads upon the claimed limitation.

Howoritz does not explicitly disclose to the intra prediction modes. However, Wiegand teaches that with the coding standard of H.264 there are two types of intra coding prediction (see. 9.3.1 Intra_4x4 prediction process for luma samples, 9.3.2.4 Specification of Intra_16x16_Plane prediction mode). Thus taking the teachings of Horowitz, where it is disclosed to determine the missing XXX and to encode as intra, with Wiegands explicit teachings of the intra prediction, it is clear to the Examiner that Horowitz modified by Wiegand teaches to interpolate the lost macroblock data using neighboring macroblocks that are intra coded in either by 4x4 or 16x16, which reads upon the claimed limitation).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Wiegand with Horowitz for providing improved image quality.

Regarding claim 2, Howoritz (modified by Weigand) as a whole teaches everything as claimed above, see claim 1. In addition, Horowitz teaches the method according to claim 1 wherein the coded imaged is coded in accordance with a predetermined coding standard (Horowitz teaches where in addition, motion vectors for each macroblock may be non-differentially encoded. These improvements seek to attenuate the disturbances caused by data packet loss across a communication link. The scope of the present invention covers a variety of video standards, including, but

not limited to, H.261, H.263, H.264, MPEG, MPEG-2, and MPEG-4) and wherein the intra prediction mode is specified by the predetermined coding standard (Howoritz discloses that in addition, the coding engine 402 encode (i.e., compresses) each macroblock to reduce the number of bits used to represent data content. Each macroblock may be "intra coded".)

Horowitz does not explicitly disclose the intra prediction mode.

However, Weigand exploit discloses an intra prediction mode (see. 9.3.1 Intra_4x4 prediction process for luma samples, 9.3.2.4 Specification of Intra_16x16_Plane prediction mode).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Weigand with Horowitz for improved image quality.

Regarding claim 3, Howoritz (modified by Wiegand as a whole teaches everything as claimed above, see claim 2. In addition, Horowitz teaches the method according to claim 2 wherein the coded imaged is coded in accordance with the ISO/ITU H.264 coding standard (Horowitz teaches where in addition, motion vectors for each macroblock may be non-differentially encoded. These improvements seek to attenuate the disturbances caused by data packet loss across a communication link. The scope of the present invention covers a variety of video standards, including, but not limited to, H.261, H.263, H.264, MPEG, MPEG-2, and MPEG-4).

Horowitz is silent in regards to the intra prediction mode is specified by the ISO/ITU H.264 coding standard

However, Weigand teaches where the intra prediction mode is specified by the ISO/ITU H.264 coding standard (see 8.5.4 Intra Coding, 9.3 Intra Prediction).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Weigand with Horowitz for providing improved image quality.

Regarding claim 5, Horowitz (modified by Wiegand) as a whole teaches everything as claimed above, see claim3. Horowitz teaches macroblocks neighboring the macroblock with pixel data errors (fig. 7). Horowitz is silent in regards to the method according to claim 3 wherein the at least one intra prediction mode is established in accordance with a relative position of intra prediction.

However, Wiegand discloses at least one intra prediction mode is established in accordance with a relative position of intra prediction modes (see section 9.3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Wiegand and Horowitz for providing improved image quality.

5. Claims 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz et al., US7,239,662 in view of Wiegand et al, Draft ISO/IEC 14496-10:2002 (E) (herein referenced as Wiegand) in view of Chien et al, US-5,621,467.

Regarding claim 4, Horowitz (modified by Wiegand) as a whole teaches everything as claimed above, see claim 1.Horowitz is silent in regards to the method according to claim 1 wherein the establishing of at least one intra-prediction mode is

limited to information within a rectangular array of blocks centered about the block having missing pixel data.

Weigand discloses where establishing at least one of an intra-prediction mode (see section 9.3 Intra Prediction).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Wiegand with Horowitz for providing) improved image quality.

Horowitz (modified by Wiegand) is silent in regards to limiting information with a rectangular array of blocks centered about the block having missing pixel data.

However, Chien teaches where in the data from element 30 is data which surround the lost block B. the data TR, from element 31, preferably is a temporally prediction of the lost block using motion vectors from the block vertically above the lost block to determine the predicted values, col. 3 line 62 to col. 4 line 2 and fig. 1 and 2. Thus, it is clear to the Examiner that Chien discloses to use the image data center around the missing block to determine the missing image data. Taking the teachings of Chien, using the image data surrounding the missing data with Wiegands explicit teaching of the intra prediction, now Horowitz modified by (Wiegand and Chien) discloses to use the surrounding image data to determine an intra prediction, which reads upon the claimed limitation.

Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Chien with Horowitz (modified by Wiegand) for providing improved error concealment of images.

Regarding claim 6, Horowtiz teaches A method of concealing spatial errors in a coded image comprised of a stream of macroblocks coded in accordance with the ISO/ITU H.264 Standard the method comprising the steps of: examining each macroblock for pixel data errors (fig. 7) , and if so, then: deriving at least one intra-prediction mode from neighboring blocks, the mode specified by the ISO/ITU H.264 standard (Horowitz teaches where in addition, motion vectors for each macroblock may be non-differentially encoded. These improvements seek to attenuate the disturbances caused by data packet loss across a communication link. The scope of the present invention covers a variety of video standards, including, but not limited to, H.261, H.263, H.264, MPEG, MPEG-2, and MPEG-4)., col. 4 line 4-7)

Horowtiz is silent in regards to one intra-prediction mode and applying at least one interpolation filter corresponding the at least one derived prediction mode to estimate the pixel data to correct the pixel data errors.

However, Wiegand teaches at least one intra-prediction mode (see 9. 3 Intra mode).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Wiegand with Horowitz for providing improved image quality.

Horowitz (modified by Weigand) is silent in regards to applying at least one interpolation filter corresponding the at least one derived prediction mode to estimate the pixel data to correct the pixel data errors.

However, Chien teaches applying at least one interpolation filter corresponding the at least one derived prediction mode to estimate the pixel data to correct the pixel data errors (col. 10 line 47-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Chien with Horowitz (modified by Wiegand) for providing improved image coding.

Regarding claim 7, see the rejection and analysis made for claim 4.

Regarding claim 8, see the rejection and analysis made for claim 5.

Regarding claim 9, Horowitz (modified by Wiegand and Chien) as a whole teaches everything as claimed above, see claim 6. Horowitz is silent in regards to the method according to claim 6 wherein an individual macroblocks can be intra-predicted as one of a single partition of 16.times.16 pixels (Intra.sub.--16.times.16 type coding) or as partition of 16 blocks of 4.times.4 pixels (Intra.sub.--4.times.4 type coding).

However, Wiegand teaches wherein an individual macroblocks can be intra-predicted as one of a single partition of 16.times.16 pixels (Intra.sub.--16.times.16 type coding) or as partition of 16 blocks of 4.times.4 pixels (Intra.sub.--4.times.4 type coding) (see 9.3.1 Intra_4x4 prediction process for luma samples)

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the teaching of Wiegand with Horowitz (modified by Chien) for proving improved image quality.

Regarding claim10, Horowitz (modified by Wiegand and Chien) as a whole teaches everything as claimed above, see claim 9. Horowitz is silent in regards to he method according to claim 9 wherein for the Intra.sub.--16.times.16 type coding, the intra prediction modes comprise: (a) Mode 0, vertical prediction; (b) Mode 1, horizontal prediction; (c) Mode 2, DC prediction; and (d) Mode 3, plane prediction.

However, Wiegand teaches wherein for the Intra.sub.-- 16.times.16 type coding, the intra prediction modes comprise: (a) Mode 0, vertical prediction; (b) Mode 1, horizontal prediction; (c) Mode 2, DC prediction; and (d) Mode 3, plane prediction (see 9.3.2 Intra Prediction for 16x16 mode for luma).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the teaching of Wiegand with Horowitz (modified by Chien) for proving improved image quality.

Regarding claim11, Horowitz (modified by Wiegand and Chien) as a whole teaches everything as claimed above, see claim 9. Horowitz is silent in regards to the method according to claim 9 wherein for the Intra.sub.--4.times.4 coding type, the

prediction modes each one having associated an interpolation filter to derive a prediction for each pixel within a block

However, Wiegand teaches at least one intra-prediction mode (see 9. 3 Intra mode).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Wiegand with Horowitz for providing improved image quality.

Horowitz (modified by Weigand) is silent in regards to applying at least one interpolation filter corresponding the at least one derived prediction mode to estimate the pixel data to correct the pixel data errors.

However, Chien teaches applying at least one interpolation filter corresponding the at least one derived prediction mode to estimate the pixel data to correct the pixel data errors (col. 10 line 47-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Chien with Horowitz modifiedid by Wiegand) for providing improved image coding.

Regarding claim 12, Horowitz (modified by Wiegand and Chien) as a whole teaches everything as claimed above, see claim 9. Horowitz is silent in regards to the method according to claim 9 wherein the prediction modes comprise: (a) Mode 0, vertical prediction; (b) Mode 1, horizontal prediction; (c) Mode 2, DC prediction; (d) Mode 3, diagonal down-left prediction; (e) Mode 4, diagonal down-right prediction; (f)

Mode 5, vertical right prediction; (g) Mode 6, horizontal down prediction; (h) Mode 7, vertical left prediction; and (i) Mode 8, horizontal up prediction.

However, Weigand teaches wherein the prediction modes comprise(a) Mode 0, vertical prediction; (b) Mode 1, horizontal prediction; (c) Mode 2, DC prediction; (d) Mode 3, diagonal down-left prediction; (e) Mode 4, diagonal down-right prediction; (f) Mode 5, vertical right prediction; (g) Mode 6, horizontal down prediction; (h) Mode 7, vertical left prediction; and (i) Mode 8, horizontal up prediction (see section 9.3 Intra Prediction).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the teaching of Wiegand with Horowitz (modified by Chien) for proving improved image quality.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA ROBERTS whose telephone number is (571)270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/
Supervisory Patent Examiner, Art Unit 2621

/Jessica Roberts/
Examiner, Art Unit 2621